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ABSTRACT

The report provides an overview of the nature of the open classroom in terms of implications for special education, describes an ongoing research project on the open classroom, and presents data on one phase of the project. Considered in the overview of the open classroom are the teacher role in the learning process, the role of individual differences, and the role of individualized instruction. It is thought that the handicapped child may show more creative behavior and may become increasingly more self-regulative and internally controlled in the open classroom than in the traditional rigid classroom. The project described involves examination of six open classrooms in a neighborhood of Philadelphia. The classrooms are all located in an inner city neighborhood. Children were observed for about 5 hours; their activities and duration of activities were recorded. It was found that a major portion of each hour in the open classroom is spent in peer interaction. Successful children were found to spend almost one-sixth of their time participating in academically-related activities and conversations with their peers. Least successful children were found to spend less than 2 minutes per hour engaged in academically-related activities. (CB)

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# INDIVIDUAL DIFFERENCES IN OPEN EDUCATION

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My paper consists of three major topics. I will first present a brief overview of the nature of the open classroom insofar as it has implications for special education practices. Secondly, I will give an overall description of an ongoing research project on the open classroom. Finally, I will present some data on one phase of this project.

Dissatisfaction with current special educational practices and exhortations to change the bases for grouping or the nature of the treatment have been voiced by a variety of concerned individuals (Christoplos and Renz, 1969; Dunn, 1968; Lilly, 1970; Quay, 1968; Sabatino, 1971). These authors, and many others advocate a variety of positive changes in the special educational scene. By and large, however, the various positions simply emphasize different ways of grouping children in terms of (a) more appropriate criteria (behavioral or situational characteristics as opposed to etiology) or, (b) grouping in more flexible arrangements (resource rooms or diagnostic centers as opposed to self-contained classrooms).

The notion that more imaginative grouping procedures could improve special education of the handicapped is not questioned here. It is suggested, however, that as long as the focus of our attempts at reform center on refining our rationale for grouping per se and for improving the reliability of the criterion measures used for grouping children, we are limiting the range of variables that are in need of critical reexamination. As long as we are looking only for newer and better ways to group exceptional children, we may be missing the important, perhaps critical variables.

Several of these variables become especially apparent when one examines the rationale of the open classroom or the British Infant School.

(a) The teacher's role in the learning process. The open classroom is not a particular form of administrative arrangement, a special way of grouping children (although it carries with it implications for grouping), or a particular set of curriculum materials or methodology. Rather, what distinguished the open classroom and its various adaptations is the unique way in which the teacher relates to her pupils and organizes the participation of the pupils in their own learning experiences. The open classroom can exist only in a situation in which the teacher is committed to a decided increase in the effective decision-making of her pupils and to a relative attenuation of the extent to which she pre-determines a given child's curricular activities. It might be accurate to say that the open classroom is characterized as much by what the teacher does not do as by what she does do. Whether or not an actual diminishing in the exercise of power by the teacher occurs, or not, remains an empirical question.

(b) The role of individual differences. This is a topic that is of particular interest to special educators, who specialize in the different. In the past, the most typical responses of special educators to the fact of individual differences have been the devising of special curricula, the training of teachers to use these special curricula, and most especially, the grouping together of children who exhibit similar characteristics.

Special classes or schools for the mentally retarded, learning disabled, and emotionally disturbed, as well as the newly reformulated methods

of dealing with problem children such as resource rooms, represent a logical outgrowth of the assumption that a teacher can be more effective with pupils - both the group that deviates and the group that remains in the regular grades - if they are roughly equal in ability, achievement level or some other criterion. The open classroom (as evidenced in Philadelphia) however, directly challenges this assumption. Not only is no attempt made to group pupils homogeneously (as had traditionally been the practice in the schools under study), but deliberate effort is expended in some classes in widening the range of the achievement and ability composition of the groups. This is done in primarily two ways - 1) children with behavior and learning problems are specifically encouraged to enter the learning lab; in several cases noted in the study thus far, parents of children who had been, or were about to be suspended from traditional classrooms enrolled their children in the learning labs as a last resort; and 2) the chronological ages represented in the various classes ranges from a minimum of one year to a maximum of six years. Children who would normally be in grades from K up through 1, 2, 3, or 4 are deliberately placed together. We have seen that this arrangement has at least the following three measurable effects: 1) There is considerably more "helping" or "teaching" by one pupil to another than in traditional classrooms, 2) Younger or poorer achieving children are learning incidentally considerable material that is presented to older children, and are engaging in a number of activities that have hertofore been considered "appropriate" only for older children, e.g. multiplication and division are normally encountered by children not before third or

fourth grade - but some of our second or first graders are picking it up. 3) Teachers seem to perceive less deviant behavior and less under-achievement in the open classrooms, leading to fewer referrals for psychological examinations, testing, and special class placement. We believe that this is the case due to the fact that open classroom teachers expect a great variety in the levels of achievement and behavior due to the heterogeneity of the pupils age-wise and ability-wise.

The open classroom is not conducive to teachers forming rigid operationalized beliefs and demands as to what "normal" behavior and achievement of any age group should be like. Contrast this with the regular class where a teacher of say homogeneously grouped second graders can form very precise ideas (even to the extent of knowing what page a child should be on) as to what the "average" child in her room should be doing and achieving. Relatively minor deviations from the mode can be very easily detected by any teacher. In the open classroom, due to the wide representation of ages and abilities, together with the large degree of self-selection of activities that children engage in, it should be much more difficult for a teacher to decide that Johnny is underachieving, or that Susan is too old to be acting a certain way.

(c) <u>The Role of Individualized Instruction</u>. It is interesting to note that most other efforts that have taken the idea of individual differences seriously (Resnick, 1971) for example, have moved precisely in the opposite direction of the open classroom in terms of the teachers role in pre-determining or programming a child's learning experience. Most teacher training emphasizes careful pre-programming and pre-sequencing

of the responses the child will be permitted to make. The teaching machine (whether human or inanimate) represents the epitome of this educational ideology.

In many respects the open classroom seems to represent possibilities for individualization of instruction par excellence. Freed from interfering stereotypes of what "most" or "average" children are like, one would expect that teachers would encourage youngsters to embark on highly unique, personalized learning sequences. The type of individulized instruction in the open classroom that marks it as distinct from other approaches is the degree to which pupils can determine the when, what, and how of their educational experiences. Although teachers in the open classroom vary in the extent to which they encourage pupils to exert freedom of choice in their learning activities, all open classrooms observed in our study exhibit a degree of pupil self-selection and self-pacing unknown in traditional classes or other individualized instruction. The degree to which the handicapped child, especially the intellectually handicapped child can handle, or be educated to handle, this type of self-regulation remains an empirical question.

There is good reason to believe, however, that all children, including the handicapped child, will not only manifest more creative behavior but actually become increasingly more self-regulative or internally controlled in this kind of setting than in a more rigid one. Evidence of this kind has been noted in the laboratory and semi-classroom situations (de Charms, 1969) in the sense that persons if treated as origins rather than pawns will tend to behave and perceive of themselves as origins

rather than pawns. If such self determination can actually be facilitated in an open classroom arrangement there is further good reason to believe that such effects would have direct implications also for economic and social self-sufficiency in the post-school years - a major problem with the mildly retarded and other handicapped groups.

The project described here concerns an examination of six open classrooms in a "changing" neighborhood in Philadelphia.

All six of the open classrooms were located in one school in an inner city neighborhood. The neighborhood is integrated as is the school, although the proportion of blacks in the school (55%) is higher than in the neighborhood. Teachers of the open classrooms had volunteered for the additional training and planning required to provide this "educational alternative" for children in Kindergarten through fourth grade. Children were grouped in classes composed of more than one grade level - two classes contained K-1; two classes contained 2, 3, 4; one class contained K, 1, 2; one class contained K, 1, 2, 3.

In an attempt to delineate both what actually happens in the open classroom (process variables) and what the outcomes are (product or output variables) we are doing the following.

I. In each of the open classrooms and in an appropriate traditional class, the following youngsters are being identified and intensively observed:

   a) the child receiving the lowest standardized achievement (composite) score.

   b) the child nominated by his teacher as being the poorest achiever.

c) the child identified as most unpopular in his class on a sociometric device.

d) the child nominated by his teacher as most poorly adjusted.

e) the child nominated by his peers as least academically able.

The observational schedules developed for Project PRIME are being utilized for this phase of the study. Data have not yet been analyzed.

II. Children entering the open classroom at grades K, 1, 2, 3, and 4 (N = 180) have been evaluated on anxiety, locus of control, two self-concept measures and a sociometric measure within their first year in the open classes. Randomly selected counterparts in the regular grades K-4 (N = 64) have also been evaluated on anxiety, locus of control and the self-concept measures. These pupils are being re-assessed on these same measures one year and two years later to evaluate changes taking place in the two settings.

III. Children entering Kindergarten and first grade open classes (N = 110) in fall of 1971 have been matched to children entering Kindergarten and first grade traditional classes (N = 110) on the basis of Slosson Verbal Aptitude Test scores and the Philadelphia Readiness Test scores, respectively. These youngsters are being followed for two years and compared on 1) rate of referral to special education, 2) rate of grade repetition (retention), 3) standardized achievement scores, and 4) attendance.

IV. To take into account the fact that the seven open classes being examined vary in the extent to which they are indeed "open", all classes, including the traditional will be ranked for degree of

openness (Walberg, 1971). Correlational analysis will be performed to assess the extent to which openness relates to the measures indicated on II and III above.

V. Observational data have been collected on teacher and pupil behavior in the open classes. Each teacher identified the child in her class who was among those benefitting most and among those benefitting least from instruction. The behavior of these pupils was categorized as academic versus non-academic in nature, positive or negative, and constituting an interaction with the teacher, interaction with a peer, or as an individual, isolated activity. Teacher behavior was categorized as child - versus teacher - initiated, and as academic, management, or personal-social in nature. This is the data I would like to share with you.

Of the most benefitting children, three were girls, and three were boys. All of the least benefitting children (six) were boys. Of the most benefitting children, three were in grade K; one in grade 1, and two in grade 3. Of the least benefitting children, three were in grade K, with one each in grades 1, 2 and 4.

Procedure: Each of the twelve children was observed for approximately five hours during which a narrative account of both his activities and their duration was written. Following the observation, the log kept on each child was examined to determine the previously determined categories into which each of the child's activities could be classified.

Categories were described in 2 x 2 x 3 matrix for each group which included academic vs. non-academic activities; activities with teachers, peers, or alone, and positive vs. negative interactions.

For each child the number of minutes of activity in each of the 12 categories was computed. This sum was divided by the number of hours of observation. The result of these computations was a rate or number of minutes per hour which each child spent in activities in each of the 12 categories.

Because the open classroom differs markedly from the traditional setting, criteria for determining academic and non-academic activities were established on a more flexible but somewhat subjective basis. In general, any activity from which the child could gain knowledge of a traditional discipline, especially reading and arithmetic, were classed as academic activities, regardless of context. For example, if a child were engaged in building with blocks, the activity would be classed as academic if some kind of measurement would be involved, non-academic if he were merely laying blocks end to end. Examples of non-academic activities would include inactivity, social conversation, and housekeeping in the classroom (such as cleaning the gerbil cage.) Negative interactions included reprimands, fights, coying, and similar activities.

Results

A 2 x 2 x 2 x 3 analysis of variance was performed on data described above. Factor S included most benefitting and least benefitting children; factor A included academic and non-academic activities; factor M included activities with teacher, peers or self. Factor P included positive and negative interactions.

Significant main effects were found for A, ($F = 12.98$, $dF = 1, 10$, $p < .01$) in favor of non-academic activity, with approximately 39 minutes per hour spent on non-academic activity, for M ($F = 8.05$, $dF = 2, 20$, $p < .01$)

in favor of time spent with peers, approximately 26 minutes per hour, and alone, approximately 22 minutes per hour, rather than with teacher, 12 minutes per hour, and for P ($F = 228.16$, $dF = 1, 10$, $p$ .01) in favor of positive interactions with approximately 55 minutes per hour.

Figure 1 represents the interaction of group and academic - non-academic factor. This interaction was significant beyond the .05 level of confidence ($F = 7.60$, $dF = 1, 10$).

Insert Figure 1 about here

Figure 2 represents the interaction of factor A (academic - non-academic) and factor M (teacher, peers, self). This interaction was significant beyond the .01 level of confidence ($F = 6.32$, $dF = 2, 20$).

Insert Figure 2 about here

Figure 3 represents the interaction of factor P (positive vs. negative) with factor M. This interaction was significant beyond the .05 level of confidence ($F = 3.87$, $dF = 2, 20$).

Insert Figure 3 about here

Figure 4 represents the interaction of factor A with factors P and M. This interaction ($F = 6.69$, $dF = 2, 20$) was significant beyond the .01 level confidence.

Insert Figure 4 about here

Discussion

While the methods of data collection used in this study were to

some extent subjective and exploratory, the significant differences found between most and least benefitting groups of children lend credibility to the direct observation and recording procedure.

Across both groups the finding that approximately 39 minutes per hour was spent on non-academic activity is somewhat surprising in light of the latitude in classifying an activity as academic. However, a large share of the block of time was contributed by the least benefitting group. Inspection of Figure 1 indicates that least benefitting children spend 15.54 minutes per Mode cell per hour or 46.62 minutes per hour on non-academic activities while the most benefitting children spent 10.53 minutes per Mode cell per hour or 31.59 minutes per hour on non-academic activities. These results lead us to reject the null hypothesis that no differences would be found between groups in rate for academic vs. non-academic activity.

Inspection of Figure 2 indicates that children in both groups differentiate among teacher, peers, and self, dependent upon whether the activity being engaged in is academic or non-academic. Peers were the choice for 20.50 minutes per hour during non-academic activity, but for only 5.62 minutes per hour during academic activity. Thus, across both groups children spent a total of 26.12 minutes per hour, more than with teacher or self. In the open classroom this amount of interaction with peers is expected. However, inspection of separate means for each group indicates again that the least benefitting group (23.99 minutes per hour) contributed more heavily than did the most benefitting group (16.36 minutes) per hour on non-academic activities with peers. Table 1 includes

means (number of minutes per hour) for three of the factors (positive-negative dichotomy is omitted).

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Insert Table 1 about here
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Inspection of Table 1 indicates that the most benefitting children spent 9.30 minutes per hour with peers in academic activity while least benefitting children spent only 1.94 minutes per hour in the same category.

Figures 3 and 4 graphically depict the effect of the positive-negative dichotomy on factor M and on the interaction of A x M respectively. The significant P x M interaction (figure 3) seems to indicate only that most of the time spent in interchange regardless of with whom are positive, although there is proportionately less positive time spent with teacher than would be expected.

Figure 4 indicates that, across both groups, virtually no time is spent in negative academic interchanges, while a moderate amount of time spent on non-academic activities may be considered as negative. Another way of stating this is that the time spent on academic activities, while much less than that spent on non-academic activities, is overwhelmingly positive regardless of whether it is spent with teacher, peers or self. Non-academic activities break down as follows: 77% of time spent with teacher is positive, as opposed to figures of 89% and 91% for peers and self, respectively.

While it is obvious that the differences obtained between the two groups were to be expected, simply because a comparison of the best and worst cases was undertaken, the findings reported here remain a significant contribution to knowledge about the open classroom. Essentially descrip-

tive data were presented here so that an estimate of what a successful child in the open classroom does to make himself successful could be established. Similarly, such an estimate was established for the unsuccessful child in the open classroom.

Of particular interest is the finding that a relatively major portion of each hour in the open classroom is spent in peer interaction. This indicates that a hitherto neglected aspect of classroom research - the extent to which children learn from each other - may have to be seriously looked at. The data presented here indicate that successful children spend almost one-sixth of their time engaging in academically-related activities and conversations with their peers. The small amount of time (less than two minutes per hour) that the least successful children spent on academic activity with their peers suggests that a major effort in redirecting the nature of peer interactions might have heavy pay-off in the open classroom.

The fact that even task-oriented youngsters spend slightly more than half of their time in the classroom on non-academic activities (overall, less than 13 minutes per hour are spent on academic tasks) perhaps should raise questions about the efficacy of overall time use by pupils in the open classroom. Lack of effective use of time is, however, not restricted to the open classroom. Preliminary results of a study similar to this one except in traditional classes, suggests that even less of the time in conventional programs is spent on activities that are academically oriented.

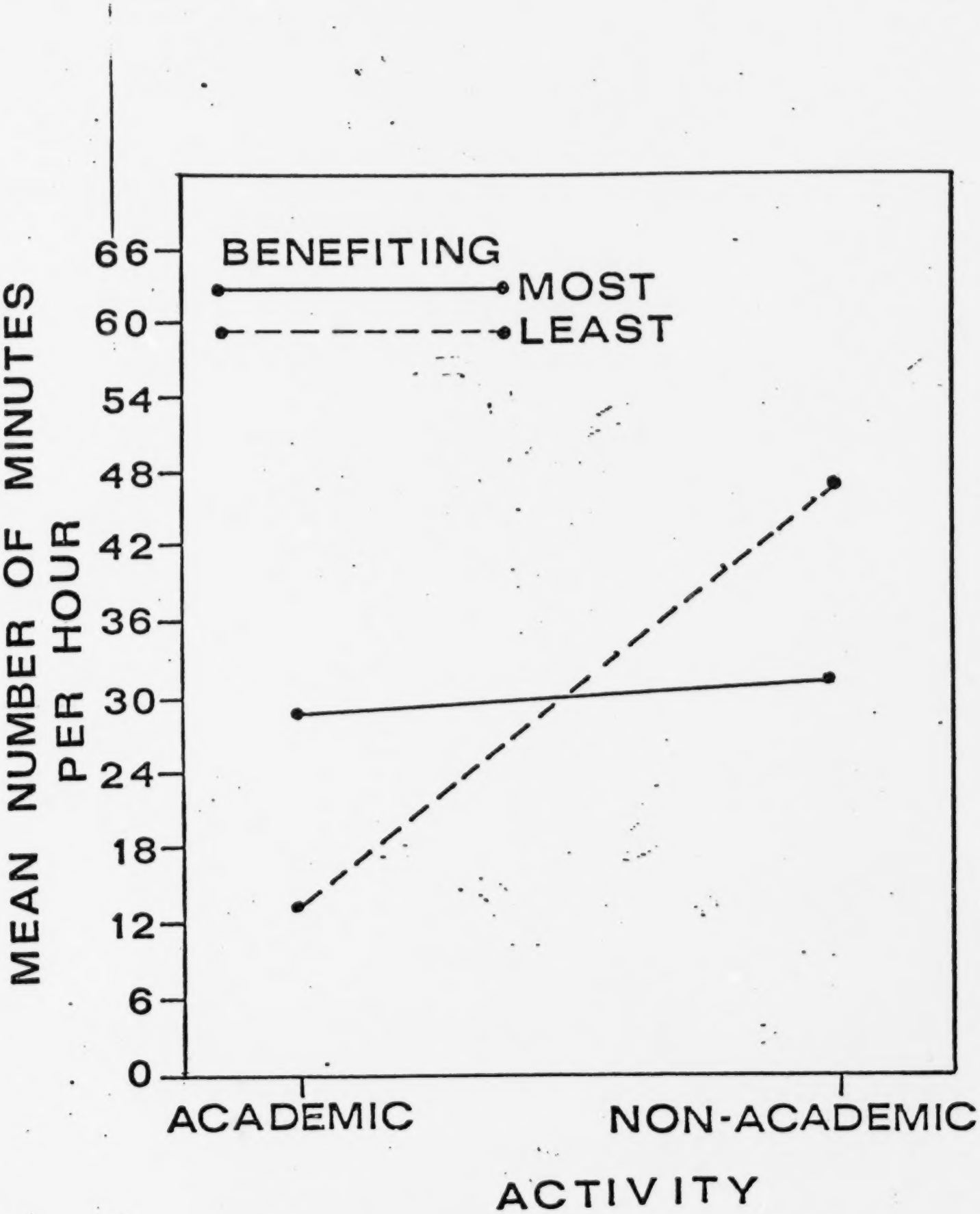
Table 1

| | | Teacher | Peer | Self |
|---|---|---|---|---|
| Academic | Most Benefitting | 9.28 | 9.30 | 9.78 |
| | Least Benefitting | 4.12 | 1.94 | 7.32 |
| Non-Academic | Most Benefitting | 6.16 | 16.16 | 9.26 |
| | Least Benefitting | 3.92 | 24.82 | 17.86 |

## Figure Caption

**Figure 1.** STUDENT GROUP BY ACADEMIC ACTIVITY

Figure 1.


BENEFITING
MOST
LEAST
66
60
54
48
42
36
30
24
18
12
6
0
MEAN NUMBER OF MINUTES PER HOUR
ACADEMIC
NON-ACADEMIC
ACTIVITY

## Figure Caption

Figure 2. PERSON BY ACADEMIC ACTIVITY

Figure 2.

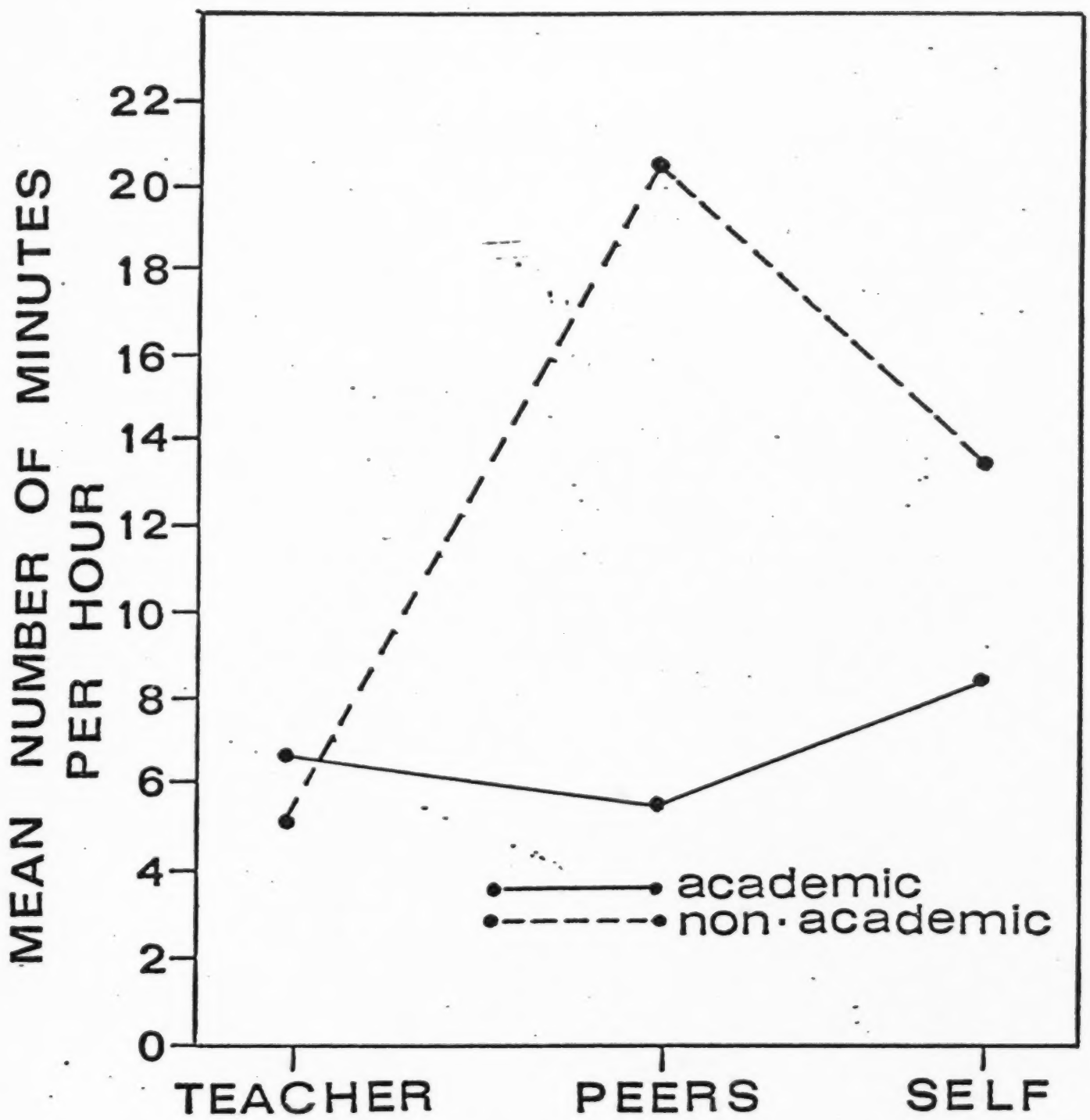
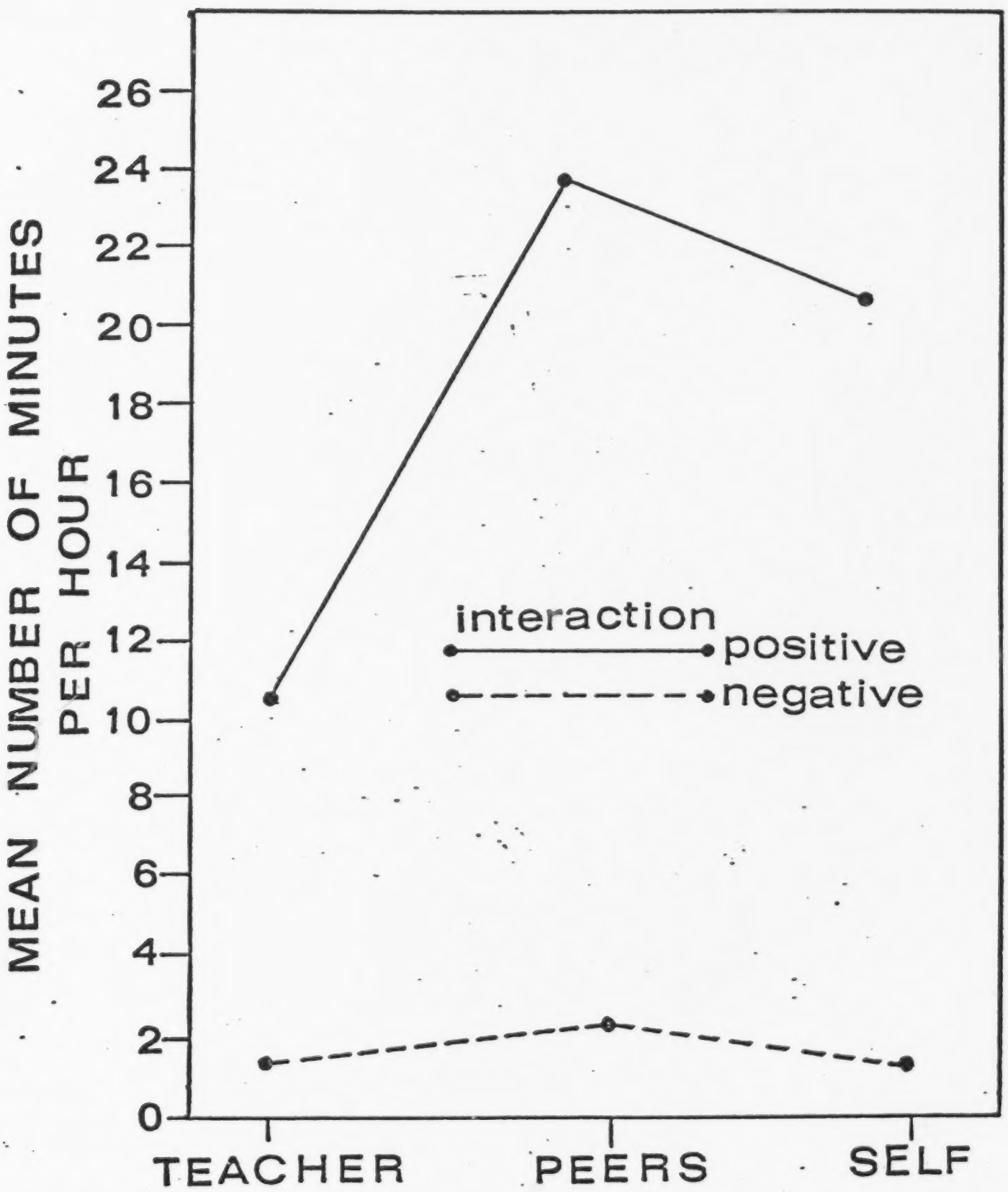

MEAN NUMBER OF MINUTES PER HOUR
0
2
4
6
8
10
12
14
16
18
20
22
TEACHER
PEERS
SELF
academic
non·academic

Figure Caption

Figure 3. PERSON BY POSITIVE ACTIVITY

Figure 3.


MEAN NUMBER OF INTERACTIONS PER HOUR
26
24
22
20
18
16
14
12
10
8
6
4
2
0
interaction
positive
negative
TEACHER
PEERS
SELF